

CLAIMS

1. Catalyst that contains at least one matrix, at least one zeolite and at least one hydro-dehydrogenating element that is located at the matrix and selected from the group that is formed by the elements of groups VIB and VIII, and in which the zeolite contains in its porous network at least one element of group VIB and/or group VIII, whereby the catalyst also comprises at least one promoter element that is selected from the group that is formed by boron, silicon, and phosphorus.
2. Catalyst according to claim 1, in which the zeolite is selected from the group that is formed by the Y zeolite and the beta zeolite.
3. Catalyst according to one of the preceding claims, in which the zeolite is at least in part dealuminified.
4. Catalyst according to one of the preceding claims that also comprises at least one element of group VII A.
5. Catalyst according to one of the preceding claims, in which at least one element of group VIB and at least one element of group VIII are deposited on the catalyst.
6. Catalyst according to one of the preceding claims, in which the matrix is selected from the group that is formed by the alumina, the silica and the silica-alumina.
7. Catalyst according to one of the preceding claims that contains boron and silicon.
8. Catalyst according to one of claims 1 to 6 that comprises alumina, a Y zeolite that contains in its porous

network molybdenum, nickel, molybdenum and phosphorus deposited on the alumina.

9. Catalyst according to one of the preceding claims that contains in % by weight of the final catalyst:

- 0.1 to 98.7% of zeolite
- 1 to 99.7% of matrix,
- at least one of the elements of groups VIB and/or VIII at a ratio of 0.1-40% of an element of group VIB, and/or 0.1 to 30% of an element of group VIII (% by weight of oxide),
- at most 20% (% by weight of oxide) of at least one promoter element that is selected from the group that is formed by boron, silicon and phosphorus
- 0-20% of at least one element of group VIIA, and in which the zeolite contains in its porous network (in % by weight of oxide in the catalyst) at least one of the elements of groups VIB and/or VIII at a ratio of 0.1-10% by weight of an element of group VIB and/or 0.1-10% by weight of an element of group VIII.

10. Catalyst according to one of the preceding claims, prepared by:

- a) Introduction into the zeolite of at least one element of group VIB and/or group VIII;
- b) mixing with the matrix and shaping to obtain the substrate,
- c) introduction of at least one promoter element by impregnation and introduction of at least one hydro-

dehydrogenating element in the matrix or on the substrate by at least one of the following methods:

-- Addition of at least one compound of said element during the shaping to introduce at least a portion of said element,

-- impregnation of the substrate with at least one compound of said element;

d) drying and calcination of the final product that is obtained and optionally drying and/or calcination of the products that are obtained at the end of stages a) or b) or after an impregnation.

11. Catalyst according to one of the preceding claims, prepared by:

a) Optional introduction into the zeolite of at least a portion of at least one element of group VIII,

b) mixing with the matrix and shaping and calcination to obtain the calcined substrate,

c) ionic exchange on the calcined substrate with a solution of at least one compound of group VIII, and introduction of at least one promoter element by impregnation,

d) drying and calcination of the final product that is obtained and optionally drying and/or calcination of the products that are obtained at the end of stage a).

12. Catalyst according to one of claims 1 to 9 or obtained by the process according to one of claims 10 or 11 that have been subjected to sulfurization for transforming at least partly the metallic radicals into sulfides.

13. Use of the catalyst according to one of claims 1 to 12
for the transformation of hydrocarbon fractions.

~~Sub A4~~ 14 Use of the catalyst according to claim 13 for
hydrocracking or hydrorefining.

~~A process~~
15. Use of the catalyst according to claim 14 for
hydrocracking in which the temperature is at least 230°C, the
pressure is greater than 2 MPa and less than or equal to 12 MPa,
the amount of hydrogen is at least 100 normal liters per liter of
feedstock, and the hourly volumetric flow rate is 0.1-10 h⁻¹.

~~A process~~
16. Use of the catalyst according to claim 15, in which the
pressure is 7.5 to 11 MPa.

~~A process~~
17. Use of the catalyst according to claim 14 for
hydrocracking in which the pressure is at least 8.5 MPa, in which
the temperature is at least 230°C, the amount of hydrogen is at
least 100 normal liters per liter of feedstock, and the hourly
volumetric flow rate is 0.15-10 h⁻¹.

Add A5

Add B5

Add C4